

ANNEX
BETWEEN
THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
GEORGE C. MARSHALL SPACE FLIGHT CENTER
AND UNITED LAUNCH ALLIANCE
UNDER SPACE ACT UMBRELLA AGREEMENT
NO. SAA8-1726580, DATED 10/31/2017 (ANNEX NUMBER 20).

ARTICLE 1. PURPOSE

This Annex shall be for the purpose of supporting collaboration in the development, manufacturing, and test of tank hardware and testing of launch vehicle systems. NASA will perform simulated service testing of material specimens in a combination of environments including liquid hydrogen (LH2), gaseous hydrogen (GH2), liquid nitrogen (LN2), gaseous nitrogen (GN2), and/or air. This testing will be conducted at the Hydrogen Test Facility (Bldg. 4628) and Materials Mechanical Test Facility (Bldg. 4602) at the George C. Marshall Space Flight Center.

The legal authority for this Annex, consistent with the Umbrella Agreement, is in accordance with the Space Act, Other Transactions Authority (OTA), 51 U.S.C. § 20113(e).

ARTICLE 2. RESPONSIBILITIES

NASA will use reasonable efforts to:

1. Fabricate test specimens (not to exceed 30 simulated service specimens)
2. Induce flaws in selected specimens per test plan and conduct pre-test inspection of flaws
3. Perform testing, post-test inspection of specimens, and data analysis
4. Provide written test report
5. Return post-test specimens to the partner

ULA will use reasonable efforts to:

1. Provide a test plan
2. Provide material for test specimen fabrication

ARTICLE 3. SCHEDULE AND MILESTONES

The planned major milestones for the activities for this Annex defined in the "Responsibilities" Article are as follows:

- | | |
|--|----------------------------|
| 1. ULA provides test plan to MSFC | Effective Date plus 1 week |
| 2. ULA provides material for test specimen fabrication | Milestone 1 plus 1 week |

3. MSFC fabricates test specimens (not to exceed 30 simulated service specimens)	Milestone 2 plus 1 month
4. MSFC induces flaws in select specimens per test plan and conducts pre-test inspections of flaws	Milestone 3 plus 2 weeks
5. MSFC performs testing, post-test inspections of specimens, and data analysis	Milestone 4 plus 3 months
6. MSFC provides written report to ULA	Milestone 5 plus 2 weeks
7. MSFC delivers post-test specimens to ULA	Milestone 6 plus 1 month

ARTICLE 4. FINANCIAL OBLIGATIONS

A. Partner agrees to reimburse NASA an estimated cost of \$310,282.45 for NASA to carry out its responsibilities under this Annex.

Each payment shall be marked with MSFC SAA8-1726580 Annex 20.

B. NASA will not provide services or incur costs beyond the current funding. Although NASA has made a good faith effort to accurately estimate its costs, it is understood that NASA provides no assurance that the proposed effort under this Annex will be accomplished for the estimated amount. Should the effort cost more than the estimate, Partner will be advised by NASA as soon as possible. Partner shall pay all costs incurred and have the option of canceling the remaining effort, or providing additional funding in order to continue the proposed effort under the revised estimate. Should this Annex be terminated, or the effort completed at a cost less than the agreed-to estimated cost, NASA shall account for any unspent funds within one year after completion of all effort under this Annex, and promptly thereafter, at Partner's option return any unspent funds to Partner or apply any such unspent funds to other activities under the Umbrella Agreement. Return of unspent funds will be processed via Electronic Funds Transfer (EFT) in accordance with 31 C.F.R. Part 208 and, upon request by NASA, Partner agrees to complete the Automated Clearing House (ACH) Vendor/Miscellaneous Payment Enrollment Form (SF 3881).

ARTICLE 5. INTELLECTUAL PROPERTY RIGHTS - DATA RIGHTS

A. Data produced under this Annex which is subject to paragraph C. of the Intellectual Property Rights - Data Rights Article of the Umbrella Agreement will be protected for the period of one year.

B. Under paragraph H. of the Intellectual Property Rights - Data Rights Article of the Umbrella Agreement, Disclosing Party provides the following Data to Receiving Party. The lists below may not be comprehensive, are subject to change, and do not supersede any restrictive notice on the Data provided.

1. Background Data:
None

2. Third Party Proprietary Data:

None

3. Controlled Government Data:

None

4. The following software and related Data will be provided to Partner under a separate Software Usage Agreement:

None

ARTICLE 6. TERM OF ANNEX

This Annex becomes effective upon the date of the last signature below ("Effective Date") and shall remain in effect until the completion of all obligations of both Parties hereto, or one year from the Effective Date, whichever comes first, unless such term exceeds the duration of the Umbrella Agreement. The term of this Annex shall not exceed the term of the Umbrella Agreement. The Annex automatically expires upon the expiration of the Umbrella Agreement.

ARTICLE 7. TERMINATION

Either Party may unilaterally terminate this Annex by providing thirty (30) calendar days written notice to the other Party.

ARTICLE 8. POINTS OF CONTACT

The following personnel are designated as the Points of Contact between the Parties in the performance of this Annex.

Technical Points of Contact

NASA George C. Marshall Space Flight Center

Eric King

Team Lead, Mechanical Test & Tribology

Mail Suite: EM22

Marshall Space Flight Center, AL 35812

Phone: 256.544.7042

eric.g.king@nasa.gov

United Launch Alliance

Adam Kelley

Upper Stage Mechanical Designer

7670 South Chester Street

Centennial, CO 801123439

Phone: 303-910-4906

adam.j.kelley@ulalaunch.com

ARTICLE 9. MODIFICATIONS

Any modification to this Annex shall be executed, in writing, and signed by an authorized representative of NASA and the Partner. Modification of an Annex does not modify the terms of the Umbrella Agreement.

ARTICLE 10. SIGNATORY AUTHORITY

The signatories to this Annex covenant and warrant that they have authority to execute this Annex. By signing below, the undersigned agrees to the above terms and conditions.

NATIONAL AERONAUTICS AND
SPACE ADMINISTRATION
GEORGE C. MARSHALL SPACE
FLIGHT CENTER

UNITED LAUNCH ALLIANCE

BY: _____
Lisa Bates
Director, Engineering Directorate

BY: _____
Don Tidwell
Contract Management Specialist

DATE: _____

DATE: 16 October 2024